

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

KEREN et al.

Atty. Ref.: 4110-2

Serial No. To Be Assigned

Group: Not Yet Assigned

Filed: December 27, 2001

Examiner: Not Yet Assigned

For: METHOD AND APPARATUS FOR TESTING AND MAPPING PHASE OBJECTS

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December 27, 2001

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

PRELIMINARY AMENDMENT

Please amend the above-identified application as follows:

IN THE CLAIMS

Please substitute the following amended claims for corresponding claims previously presented. A copy of the amended claims showing current revisions is attached.

7. (Amended) A method according to claim 1, wherein the calculation of the optical parameter of interest comprises transforming the recorded moiré pattern into one or more points in the spatial frequency plane, such that the vectors defining said points are the vectors of spatial frequencies V_y and V_x associated with said moiré pattern, identifying the components of said vectors (V_{yx} , V_{yy}) and (V_{xx} , V_{xy}) and substituting their values in an equation which linearly

relates said optical parameter of interest to the second order derivatives $\frac{\partial^2 D}{\partial x^2}$, $\frac{\partial^2 D}{\partial x \partial y}$, $\frac{\partial^2 D}{\partial y \partial x}$,

$\frac{\partial^2 D}{\partial y^2}$, respectively, wherein D is the wavefront of the beam exiting the phase object.

9. (Amended) A method according to claim 1, wherein the measured optical parameter of the phase object under test is position-dependent, and the values of said optical parameter are represented by a contour map corresponding to the surface of said object.

12. (Amended) An apparatus according to claim 10, wherein the first and second gratings are provided in the form of first and second grids, respectively, wherein each grid is obtained by overlapping two identical sets of equidistant parallel lines at an angle of 90°.

REMARKS

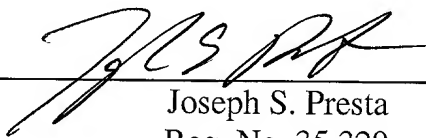
The above amendments are made to place the claims in a more traditional format.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version With Markings To Show Changes Made."

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

7. (Amended) A method according to [any one of claims 1 to 6] claim 1, wherein the calculation of the optical parameter of interest comprises transforming the recorded moiré pattern into one or more points in the spatial frequency plane, such that the vectors defining said points are the vectors of spatial frequencies V_y and V_x associated with said moiré pattern, identifying the components of said vectors (V_{yx} , V_{yy}) and (V_{xx} , V_{xy}) and substituting their values in an equation which linearly relates said optical parameter of interest to the second order derivatives $\frac{\partial^2 D}{\partial x^2}$, $\frac{\partial^2 D}{\partial x \partial y}$, $\frac{\partial^2 D}{\partial y \partial x}$, $\frac{\partial^2 D}{\partial y^2}$, respectively, wherein D is the wavefront of the beam exiting the phase object.

9. (Amended) A method according to [any one of claims 1 to 8] claim 1, wherein the measured optical parameter of the phase object under test is position-dependent, and the values of said optical parameter are represented by a contour map corresponding to the surface of said object.

12. (Amended) An apparatus according to [claims 10 and 11] claim 10, wherein the first and second gratings are provided in the form of first and second grids, respectively, wherein each grid is obtained by overlapping two identical sets of equidistant parallel lines at an angle of 90°.